PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Hayato YAMAUCHI

Appln. No.: 09/881,108

Confirmation No.: 7294

Filed: June 15, 2001

Docket No: Q64784

Group Art Unit: 3682

Examiner: William C. JOYCE

For: PINION SLIP-OFF PREVENTIVE STRUCTURE OF STARTING APPARATUS

SUBMISSION OF APPELLANT'S BRIEF ON APPEAL

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an original and two copies of Appellant's Brief on Appeal. A check for the statutory fee of $330.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

Stan Torgovitsky
Registration No. 43,958

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: May 28, 2004

#15/Appeal Brief 6-9-04

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APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

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Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellant submits the following:

I. REAL PARTY IN INTEREST

Appellants respectfully submit that the above-captioned application is assigned in its entirety to MITSUBISHI DENKI KABUSHIKI KAISHA, a company organized under the laws of Japan.

II. RELATED APPEALS AND INTERFERENCES

Appellant states that, upon information and belief, Appellant is not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

This is an appeal from the final rejection mailed October 29, 2003, wherein claims 1-5 were rejected.

The present application was filed on June 15, 2001 with claims 1-5. A Reply Under 37 C.F.R. §1.111 was filed on February 7, 2003, without amending the original claims 1-5. A Response Under 37 C.F.R. §1.116 was filed on January 29, 2004, without amending the original claims 1-5. In the Advisory Action, mailed February 13, 2004, the Examiner has indicated that the Response filed January 29, 2004 has been considered. No amendments were made to the original claims 1-5.

Accordingly, claims 1-5 as set forth in the attached Appendix are the claims currently on appeal from the rejections set forth in the final Office Action mailed October 29, 2003.

IV. STATUS OF AMENDMENTS

As noted above, no Amendments were filed in this application. The Reply Under 37 C.F.R. §1.111, filed on February 7, 2003, and Response Under 37 C.F.R. §1.116, filed on January 29, 2004, have been considered (see Office Action mailed October 29, 2003 and Advisory Action mailed February 13, 2004, respectively).

V. SUMMARY OF THE INVENTION

Appellant's invention is directed to a pinion slip-off preventive structure of a starting apparatus in which a pinion is prevented from slipping off a pinion shaft. In an embodiment of Appellant's invention, a pinion 9 is splined to a spline portion 8 formed on a pinion shaft 7 and is in meshing engagement with a ring gear of an internal combustion engine (not illustrated) while being urged in a direction toward the ring gear from a side remote therefrom by means of an elastic member 10. The pinion slip-off preventive structure 50 for preventing the pinion 9 from slipping off the pinion shaft 7 comprises: a projected portion 52 extending from an end face of the pinion shaft 7 in an axial direction thereof and having a groove 51 formed on a smooth surface thereof in a circumferential direction thereof; a snap ring 17 fitted in the groove 51; and a stopper 57 having an abutting surface 54 in abutting engagement with an end face of the pinion 9 and an engaging portion 56 engaged with the snap ring 17. (See Appellant's specification, pages 5 and 6; and Fig. 1).

In another embodiment of Appellant's invention, the projected portion 52 of the pinion slip-off preventive structure 50 has a diameter smaller than a root diameter of spline portion 8. (See Appellant's specification, page 6; and Fig. 1).

In another embodiment of Appellant's invention, the pinion slip-off preventive structure 50 further comprises a support portion 60 which has an abutting surface and extends in an axial direction of the pinion shaft 7. The support portion 60 has one end near the pinion 9 formed to enclose the end of the pinion shaft 7. (See Appellant's specification, page 8; and Fig. 3).

In another embodiment of Appellant's invention, the pinion slip-off preventive structure 50 has a space 62 formed between the one end of the pinion shaft 7 and the support portion 60. (See Appellant's specification, pages 8 and 9; and Figs. 3 and 4).

In another embodiment of Appellant's invention, the pinion slip-off preventive structure 50 further comprises a spring 70 mounted on the projected portion 52 of the slip-off preventive structure 50. Spring 70 urges stopper 61 in a direction toward the ring gear of the internal combustion engine. (See Appellant's specification, page 9; and Fig. 4).

VI. ISSUES

1. Whether claims 1-4 are anticipated by Schneider (DE 39 28 796) under 35 U.S.C. § 102(b).

2. Whether claims 1 and 3-5 are anticipated by Lafitte (US 2,960,879) under 35 U.S.C. § 102(b).

VII. GROUPING OF CLAIMS

It is noted that the rejected dependent claims 2 and 5 stand or fall together with the independent base claim 1. Dependent claim 3 recites additional, separately patentable features (see Section VIII below). Therefore, claim 3 does not stand or fall together with its independent base claim 1. Dependent claim 4 (which depends from claim 3) stands or falls together with the dependent claim 3.

VIII. ARGUMENTS

Appellant's claimed invention provides a pinion slip-off preventive structure comprising a unique combination and arrangement of features including, *inter alia*, a projected portion extending from an end face of a pinion shaft in an axial direction thereof and having a groove formed on a smooth surface thereof in a circumferential direction thereof; a snap ring fitted in the groove; and a stopper having an abutting surface in abutting engagement with an end face of the pinion and an engaging portion engaged with the snap ring (see Appellant's independent claim 1).

Neither Schneider, nor Lafitte, discloses or suggests such a unique combination of features. In particular, if assuming *arguendo*, Schneider and Lafitte disclose a pinion shaft, a stopper and a pinion as alleged by the Examiner, then in both Schneider and Lafitte, the stopper does not have an abutting surface in abutting engagement with an end face of the pinion, as required by Appellant's independent claim 1.

The Examiner alleges that Appellant's claim 1 reads on the disclosure of Schneider because "Schneider discloses a starter device having pinion (10) mounted to a pinion shaft (1), the pinion shaft having a retainer (26) fitted on a projecting portion of the pinion shaft" (see final Office Action, paragraph 2).

As noted in Appellant's Response filed January 29, 2004, during an Examiner Interview of December 16, 2003 with Appellant's representative, the Examiner supplied additional information regarding the basis for the rejection of claims 1-4 in view of Schneider.

Regarding claim 1 being anticipated by Schneider, the Examiner alleges that the left portion of the pinion shaft 1 of Schneider corresponds to the claimed feature of "a projected portion extending from an end face of the pinion shaft in an axial direction thereof." In addition, the Examiner alleges that a snap ring is shown below element 26 which is fitted in a groove formed on the projected portion. Further, the Examiner alleges that Schneider discloses a stopper (element 26) that has an abutting surface (right side portion of element 26) that abuts an end face of the pinion 10 and also has an engaging portion (bottom portion of element 26) that engages the snap ring.

Regarding claim 2 being anticipated by Schneider, the Examiner alleges that the projected portion (i.e., the left side portion of pinion shaft 1) has a diameter that is smaller than a root diameter of a spline portion (element 4).

Regarding claim 3 being anticipated by Schneider, the Examiner alleges that element 26 also comprises a supporting portion having an abutting surface and extending in a axial direction of the pinion shaft, wherein the support portion has one end near the pinion 10 so as to enclose an end of the pinion shaft.

Regarding claim 4 being anticipated by Schneider, the Examiner alleges that the pinion shaft 10 is spaced from the support portion (i.e., a portion of element 26).

With regard to Appellant's independent claim 1, as clearly shown in Schneider's single drawing figure, the right side portion of element 26 (which allegedly corresponds to the stopper

of Appellant's claim 1) does **not** abut any of the faces of element 10 (which allegedly corresponds to the pinion of Appellant's claim 1).

With regard to Appellant's dependent claim 3, as clearly shown in Schneider's single drawing figure, **no** portion of element 26 (which allegedly includes a supporting portion as recited in Appellant's claim 3) has one end near pinion 10 (which allegedly corresponds to the pinion of Appellant's claim 3) to enclose an end of pinion shaft 1 (which allegedly corresponds to the pinion shaft of Appellant's claim 3).

Therefore Appellant's independent claim 1 and its dependent claims 2-4 (which incorporate all the novel and unobvious features of their base claim) are not anticipated by (i.e., are not readable on) Schneider at least for these reasons.

With regard to Lafitte, the Examiner alleges that Appellant's claim 1 reads on the disclosure of Lafitte because "discloses a starter device having a pinion (8) mounted to a pinion shaft (3), the pinion shaft having a retainer (10) fitted on a projecting portion of the pinion shaft" (see final Office Action, paragraph 3).

As further noted in Appellant's Response filed January 29, 2004, during an Examiner Interview of December 16, 2003 with Appellant's representative, the Examiner supplied additional information regarding the basis for the rejection of claims 1 and 3-5 in view of Lafitte.

Regarding claim 1 being anticipated by Lafitte, the Examiner alleges that the right portion of the pinion shaft 3 corresponds to the claimed feature of "a projected portion extending from an end face of the pinion shaft in an axial direction thereof." In addition, the Examiner

alleges that a snap ring 12 is fitted in a groove formed on the projected portion. Further, the Examiner alleges that Lafitte discloses a stopper (element 10) that has an abutting surface (left side portion of element 10) that abuts an end face of the pinion 8 and also has an engaging portion (right portion of element 10) that engages the snap ring 12.

Regarding claim 3 being anticipated by Lafitte, the Examiner alleges that element 10 also comprises a supporting portion having an abutting surface and extending in a axial direction of the pinion shaft, wherein the support portion has one end near the pinion 8 so as to enclose an end of the pinion shaft.

Regarding claim 4 being anticipated by Lafitte, the Examiner alleges that the pinion shaft 8 is spaced from the supporting portion (i.e., a portion of element 10).

Regarding claim 5 being anticipated by Lafitte, the Examiner alleges that a spring 9 is mounted on the projected portion for urging the stopper (element 10) in a direction toward a ring gear (citing Lafitte, Fig. 6).

With regard to Appellant's independent claim 1, as clearly shown in Lafitte's Fig. 1 (see also, Lafitte's Fig. 9), the left side portion of element 10 (which allegedly corresponds to the stopper of Appellant's claim 1) does **not** abut any of the faces of element 8 (which allegedly corresponds to the pinion of Appellant's claim 1).

With regard to Appellant's dependent claim 3, as clearly shown in Lafitte's Fig. 1 (see also, Lafitte's Fig. 9), **no** portion of element 10 (which allegedly includes a supporting portion as recited in Appellant's claim 3) has one end near pinion 8 (which allegedly corresponds to the

pinion of Appellant's claim 3) to enclose an end of pinion shaft 3 (which allegedly corresponds to the pinion shaft of Appellant's claim 3).

Therefore, Appellant's independent claim 1 and its dependent claims 3-5 (which incorporate all the novel and unobvious features of their base claim) are not anticipated by (i.e., are not readable on) Lafitte at least for these reasons.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Facsimile: (202) 293-7860

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APPENDIX

CLAIMS 1-5 ON APPEAL:

1. A pinion slip-off preventive structure of a starting apparatus in which a pinion is prevented from slipping off a pinion shaft, said pinion being splined to a spline portion formed on said pinion shaft and being in meshing engagement with a ring gear of an internal combustion engine while urged in a direction toward said ring gear from a side remote therefrom by means of an elastic member,

said structure comprising:

a projected portion extending from an end face of said pinion shaft in an axial direction thereof and having a groove formed on a smooth surface thereof in a circumferential direction thereof;

a snap ring fitted in said groove; and

a stopper having an abutting surface in abutting engagement with an end face of said pinion and an engaging portion engaged with said snap ring.

2. The pinion slip-off preventive structure of a starting apparatus according to claim 1, wherein said projected portion has a diameter smaller than a root diameter of said spline portion.

3. The pinion slip-off preventive structure of a starting apparatus according to claim 1, further comprising a support portion having an abutting surface and extending in an axial direction of said pinion shaft, said support portion having one end near said pinion formed to enclose an end of said pinion shaft.

4. The pinion slip-off preventive structure of a starting apparatus according to claim 3, wherein a space is formed between the one end of said pinion shaft and said support portion.

5. The pinion slip-off preventive structure of a starting apparatus according to claim 1, further comprising a spring mounted on said projected portion for urging said stopper in a direction toward said ring gear.